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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,619	03/23/2004	Jeffrey M. Zachan	19308.0022U1	2616

35856 7590 10/23/2008

SMITH FROHWEIN TEMPEL GREENLEE BLAHA, LLC
Two Ravinia Drive
Suite 700
ATLANTA, GA 30346

EXAMINER	
YUN, EUGENE	

ART UNIT	PAPER NUMBER
2618	

MAIL DATE	DELIVERY MODE
10/23/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/806,619	ZACHAN ET AL.	
	Examiner	Art Unit	
	EUGENE YUN	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *7/14/08*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12,15,18-21,24,25 and 28-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12,15,18-21,24,25 and 28-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1, 9, 18, and 24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding Claims 9 and 18, the specification does not have any teaching of "applying each vector to an adder element and to a scaler, wherein **an output of the adder element is substantially equal in amplitude to an output of the scaler**". The examiner looked back at the specification and the only passage which taught any material relative to the above limitation was paragraph [0052]. However, the paragraph only teaches the vectors combined in the adder element as equal in magnitude and the vectors combined in the scaler element as equal in magnitude. Nothing in the paragraph states that the outputs of the adder and scaler are equal to "each other". In addition, the paragraph states that the vectors in each element are equal in "magnitude" not "amplitude".

Regarding Claims 1 and 24, the specification does not have any teaching of "a scaler configured to receive the first and second inputs and attenuate the amplitude of

each of the same to **generate a scaler output that is substantially equal in magnitude to the adder output**". Again, the examiner looked back at the specification and the only passage which taught any material relative to the above limitation was paragraph [0052]. The examiner reiterates that the paragraph only teaches the vectors combined in the adder element as equal in magnitude and the vectors combined in the scaler element as equal in magnitude. Nothing in the paragraph states that the outputs of the adder and scaler or anything regarding the adder and scaler as equal to "each other".

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-5, 9, 10, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dolman et al. (US 6,396,345) and Gorcea et al. (US 7,123,897) and further in view of Romano et al. (US 5,963,607).

Referring to Claim 1, Dolman teaches a system for generating amplitude matched, phase shifted signals, comprising:

A filter arrangement including a plurality of output nodes (see col. 12, lines 38-44), each output node configured to provide an associated vector that is offset in phase from a vector associated with each other output node (see col. 9, lines 31-44).

Dolman does not teach the filter arrangement including a plurality of input and output nodes, a first set of input nodes arranged to receive an input signal, a second set of input nodes coupled to electrical ground and an adjustable element associated with each output node, the adjustable element configured to receive a feedback signal and in response to the feedback signal substantially equalize an amplitude of each vector associated with each output node. Gorcea teaches the filter arrangement including a plurality of input and output nodes, a first set of input nodes arranged to receive an input signal, a second set of input nodes coupled to electrical ground (see col. 3, lines 20-36) and an adjustable element associated with each output node, the adjustable element configured to receive a feedback signal and in response to the feedback signal substantially equalize an amplitude of each vector associated with each output node (see col. 7, lines 1-19). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Gorcea to said device of Dolman in order to reduce distortion and therefore, reduce interference with nearby channels.

The combination of Dolman and Gorcea does not teach an adder element configured to add first and second inputs each shifted in phase from the other to generate an adder output shifted in phase from the phase of the first input and shifted in phase from the second input; and

a scaler configured to receive the first and second inputs and attenuate the amplitude of each of the same to generate a scaler output that is substantially equal in magnitude to the adder output.

Romano teaches an adder element configured to add first and second inputs (see 40 of fig. 6 with 2 inputs) each shifted in phase from the other to generate an adder output shifted in phase from the phase of the first input and shifted in phase from the second input (see col. 7, lines 31-38); and

a scaler configured to receive the first and second inputs and attenuate the amplitude of each of the same to generate a scaler output that is substantially equal in magnitude to the adder output (see col. 12, lines 23-34).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Romano to the modified device of Dolman and Gorcea in order to reduce the amount of undesired heat and thus reducing cost.

Referring to Claim 9, Dolman teaches a method for generating amplitude matched, phase shifted signals, comprising:

Providing a plurality of vectors, each vector associated with a respective output node, each vector offset in phase from each other associated with each other output node (see col. 9, lines 31-44).

Dolman does not teach applying an input signal at a subset of a set of input nodes providing a feedback signal to a respective adjustable element associated with each input and output node and adjusting each adjustable element using the feedback signal to substantially equalize an amplitude of each vector associated with each output node. Gorcea teaches applying an input signal at a subset of a set of input nodes, providing a feedback signal to a respective adjustable element associated with each

input and output node (see col. 3, lines 20-36) and adjusting each adjustable element using the feedback signal to substantially equalize an amplitude of each vector associated with each output node (see col. 7, lines 1-19). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Gorcea to said device of Dolman in order to reduce distortion and therefore, reduce interference with nearby channels.

The combination of Dolman and Gorcea does not teach applying each vector to an adder element and to a scaler, wherein an output of the adder element is substantially equal in amplitude to an output of the scaler. Romano teaches applying each vector to an adder element (see 40 of fig. 6) and to a scaler, wherein an output of the adder element is substantially equal in amplitude to an output of the scaler (see col. 12, lines 23-34).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Romano to the modified device of Dolman and Gorcea in order to reduce the amount of undesired heat and thus reducing cost.

Referring to Claim 18, Dolman teaches a system for generating amplitude matched, phase shifted signals, comprising:

Filter means including a plurality of output nodes (see col. 12, lines 38-44), the filter means for providing a plurality of associated vectors that are offset in phase from each other vector associated with each other output node (see col. 9, lines 31-44).

Dolman does not teach the filter means including a plurality of input and output nodes, a first set of input nodes arranged to receive an input signal, a second set of input nodes coupled to electrical ground,

means for providing a feedback signal to an adjustable element associated with each output node; and

means for using the feedback signal to substantially equalize an amplitude of each vector associated with each output node.

Gorcea teaches the filter means including a plurality of input and output nodes, a first set of input nodes arranged to receive an input signal, a second set of input nodes coupled to electrical ground, means for providing a feedback signal to an adjustable element associated with each output node (see col. 3, lines 20-36); and

means for using the feedback signal to substantially equalize an amplitude of each vector associated with each output node (see col. 7, lines 1-19). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Gorcea to said device of Dolman in order to reduce distortion and therefore, reduce interference with nearby channels.

The combination of Dolman and Gorcea does not teach means for applying each vector to an adder element; and

means for applying each vector to a scaler, wherein an output of the adder element is substantially equal in amplitude to an output of the scaler.

Romano teaches means for applying each vector to an adder element (see 40 of fig. 6); and

means for applying each vector to a scaler, wherein an output of the adder element is substantially equal in amplitude to an output of the scaler (see col. 12, lines 23-34).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Romano to the modified device of Dolman and Gorcea in order to reduce the amount of undesired heat and thus reducing cost.

Referring to Claim 2, Dolman also teaches four output nodes associated with the filter arrangement, each output node having an associated vector (see fig. 5b).

Referring to Claim 3, Dolman also teaches an adder element configured to add the four vectors resulting in eight phase shifted vectors (see col. 9, lines 31-41).

Referring to Claim 4, Dolman also teaches a scaler configured to scale the amplitude of the four vectors resulting in eight amplitude matched phase shifted vectors (see col. 10, line 66 to col. 11, line 2).

Referring to Claim 5, Dolman also teaches the adjustable element as an adjustable resistance (see col. 13, lines 5-10).

Referring to Claim 10, Dolman also teaches a resistance associated with each output node adjusted to substantially equalize an amplitude of each vector associated with each output node (see col. 13, lines 5-10).

Referring to Claim 19, Dolman also teaches substantially equalizing an amplitude of each vector comprising adjustable resistance means (see col. 13, lines 5-10).

5. Claims 24, 25, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andren et al. (US 4,485,358), Gorcea, and Dolman and further in view of Romano.

Referring to Claim 24, Andren teaches a system for generating amplitude matched, phase shifted signals, in a portable communication device, comprising:

A portable communication device including a transmitter and a receiver (see col. 1, lines 60-67);

A synthesizer for providing a local oscillator signal (see col. 8, lines 21-30); and

A filter arrangement configured to operate on the local oscillator signal (see col. 8, lines 31-40).

Andren does not teach the filter arrangement including a plurality of output nodes, each node configured to provide an associated vector that is offset in phase from a vector associated with each other output node. Dolman teaches the filter arrangement including a plurality of output nodes (see col. 12, lines 38-44), each node configured to provide an associated vector that is offset in phase from a vector associated with each other output node (see col. 9, lines 31-44). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Dolman to said device to Andren in order to better reduce unwanted signal interference when operating with a plurality of nodes.

The combination of Andren and Dolman does not teach a filter arrangement configured to operate on the local oscillator signal, the filter arrangement including a

plurality of input and output nodes, a first set of input nodes arranged to receive the local oscillator signal, a second set of input nodes coupled to electrical ground; and

an adjustable element associated with each output node, the adjustable element configured to receive a feedback signal and in response to the feedback signal substantially equalize an amplitude of each vector associated with each output node.

Gorcea teaches a filter arrangement configured to operate on the local oscillator signal, the filter arrangement including a plurality of input and output nodes, a first set of input nodes arranged to receive the local oscillator signal, a second set of input nodes coupled to electrical ground (see col. 3, lines 20-36); and

an adjustable element associated with each output node, the adjustable element configured to receive a feedback signal and in response to the feedback signal substantially equalize an amplitude of each vector associated with each output node (see col. 7, lines 1-19). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Gorcea to the modified device of Andren and Dolman in order to reduce distortion and therefore, reduce interference with nearby channels.

The combination of Dolman, Andren, and Gorcea does not teach an adder element configured to add first and second inputs each shifted in phase from the other to generate an adder output shifted in phase from the phase of the first input and shifted in phase from the second input; and

a scaler configured to receive the first and second inputs and attenuate the amplitude of each of the same to generate a scaler output that is substantially equal in magnitude to the adder output.

Romano teaches an adder element configured to add first and second inputs (see 40 of fig. 6 with 2 inputs) each shifted in phase from the other to generate an adder output shifted in phase from the phase of the first input and shifted in phase from the second input (see col. 7, lines 31-38); and

a scaler configured to receive the first and second inputs and attenuate the amplitude of each of the same to generate a scaler output that is substantially equal in magnitude to the adder output (see col. 12, lines 23-34).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Romano to the modified device of Dolman, Andren, and Gorcea in order to reduce the amount of undesired heat and thus reducing cost.

Referring to Claim 25, Dolman also teaches four output nodes associated with the filter arrangement, each output node having an associated vector (see fig. 5b).

Referring to Claim 28, Dolman also teaches the adjustable element as an adjustable resistance (see col. 13, lines 5-10).

6. Claims 6-8, 11, 12, 15, and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dolman, Romano, and Gorcea and further in view of Koenck et al. (US 5,912,926).

Referring to Claim 6, the combination of Dolman, Romano, and Gorcea does not teach the adjustable resistance as a metal oxide semiconductor field effect transistor (MOSFET) adjustable resistance. Koenck teaches the adjustable resistance as a metal oxide semiconductor field effect transistor (MOSFET) adjustable resistance (see col. 16, lines 1-12). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Koenck to the modified device to Dolman, Romano, and Gorcea in order to improve modulation sensitivity over a broader range of parameters.

Referring to Claim 7, Koenck also teaches the adjustable element as an adjustable capacitance (see col. 4, lines 41-52).

Referring to Claim 8, Koenck also teaches the adjustable capacitance as a varactor (see col. 1, lines 53-58).

Referring to Claim 11, the combination of Dolman, Romano, and Gorcea does not teach a capacitance associated with each output node adjusted to substantially equalize an amplitude of each vector associated with each output node. Koenck teaches a capacitance associated with each output node adjusted to substantially equalize an amplitude of each vector associated with each output node (see col. 4, lines 41-52). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Koenck to the modified device to Dolman, Romano, and Gorcea in order to improve modulation sensitivity over a broader range of parameters.

Referring to Claim 12, Koenck also teaches adjusting the resistance using a metal oxide semiconductor field effect transistor (MOSFET) adjustable resistance (see col. 16, lines 1-12).

Referring to Claim 15, Koenck also teaches adjusting the capacitance using a varactor (see col. 1, lines 53-58).

Referring to Claim 20, the combination of Dolman, Romano, and Gorcea does not teach substantially equalizing an amplitude of each vector comprising adjustable capacitance means. Koenck teaches substantially equalizing an amplitude of each vector comprising adjustable capacitance means (see col. 4, lines 41-52). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Koenck to the modified device to Dolman, Romano, and Gorcea in order to improve modulation sensitivity over a broader range of parameters.

Referring to Claim 21, Koenck also teaches the adjustable resistance means comprising a metal oxide semiconductor field effect transistor (MOSFET) adjustable resistance (see col. 16, lines 1-12).

7. Claims 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dolman, Gorcea, Romano, and Andren and further in view of Koenck.

Referring to Claim 29, the combination of Andren, Gorcea, Romano, and Dolman does not teach the adjustable resistance as a metal oxide semiconductor field effect transistor (MOSFET) adjustable resistance. Koenck teaches the adjustable resistance

as a metal oxide semiconductor field effect transistor (MOSFET) adjustable resistance (see col. 16, lines 1-12). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Koenck to the modified device to Andren, Gorcea, Romano, and Dolman in order to improve modulation sensitivity over a broader range of parameters.

Referring to Claim 30, Koenck also teaches the adjustable element as an adjustable capacitance (see col. 4, lines 41-52).

Referring to Claim 31, Koenck also teaches the adjustable capacitance as a varactor (see col. 1, lines 53-58).

Response to Arguments

8. Applicant's arguments with respect to claims 1-12, 15, 18-21, 24, 25, and 28-31 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to EUGENE YUN whose telephone number is (571)272-7860. The examiner can normally be reached on 9:00am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew D. Anderson can be reached on (571)272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Eugene Yun
Primary Examiner
Art Unit 2618

/Eugene Yun/
Primary Examiner, Art Unit 2618
/E. Y./
Primary Examiner, Art Unit 2618